

Appl. No. 09/674,479  
Atty. Docket No. CM1758M  
Amdt. dated 04/19/2004  
Reply to Office Action of 11/19/2003  
Customer No. 27752

### REMARKS

Claims 1, 2 and 22-35 are pending in the present application. Claims 1, 27 and 28 have been amended to correct typographical errors. No new matter has been added and no claims fees are believed to be due.

The Applicants strongly believe that the present amendments and accompanying Remarks have placed the present application in condition for allowance. Accordingly, the Applicants respectfully request timely and favorable action.

#### Rejection Under 35 USC § 103(a) Over Fowler in view of Schulein

Claims 1, 2 and 22-35 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,268,196 issued to Fowler et al. (hereinafter referred to as "Fowler") in view of U.S. Patent 6,117,664 issued to Schulein et al. (hereinafter referred to as "Schulein") for the reasons of record. Applicants respectfully traverse these rejections on the following bases.

According to MPEP § 2143, in order to establish a prima facie case of obviousness, three basic criteria must be met: (1) there must be some motivation or suggestion to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. Applicants submit that Fowler in view of Schulein does not meet all three of these criteria with respect to Claim 1 and the balance of the claims that ultimately depend therefrom. Specifically, Fowler does not teach or suggest the modified enzyme of Claim 1 which comprises: (1) "a catalytically active amino acid sequence from a cellulolytic enzyme EGT" which has no cellulose binding domain (See p. 4, first paragraph under the "Cellulolytic Enzyme" heading), that is "linked to (2) an amino acid sequence comprising a cellulose binding domain" from a different enzyme (See p. 12 second paragraph which describes techniques for expressing an enzyme with a cellulose binding domain (CBD) of different origin) via (3) a "linking region" which may be either an amino acid or proteinic compound from a variety of organisms (See p. 12, second paragraph) or a non-amino acid or non-proteinic compound (See p. 12, third paragraph).

In contrast, Fowler relates to "[i]mproved methods of treating cellulose containing fabrics with cellulose comprising contacting the cellulose fabrics with truncated cellulase enzyme". See Abstract. Fowler defines cellulases as "...enzymes which hydrolyze cellulose..." which may be "...produced by a number of microorganisms and comprise several different enzyme classifications including those identified as exo-cellobiohydrolases (CBH), endoglucanases (EG) and  $\beta$ -glucosidases (BG)." See Col. 2, lines 23-31. Fowler indicates that cellulases are comprised of at least three distinct separable regions: "Protein analysis of the cellobiohydrolases (CBH) and

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CBHII) and major endoglucanases (EGI and EGII) of *T. longibrachiatum* [*T. longibrachiatum* is also known as *Trichoderma longibrachiatum* and has previously been classified as *Trichoderma reesei* according to Col. 8, lines 60-64] has shown that a bifunctional organization exists in the form of [1] a catalytic core domain and a smaller [2] cellulose binding domain separated by a [3] linker or flexible hinge stretch of amino acids rich in proline and hydroxyamino acids." See Col. 3, lines 19-2. See also Col. 7, lines 51-56 which puts forth the same conclusion based upon gene analysis. "The catalytic core and the cellulose binding domain of a cellulase enzyme are believed to act together in a synergistic manner to effect efficient and often deleterious hydrolysis of cellulose fibers in a cellulose containing fabric." See Col. 11, lines 45-48. Thus Fowler excludes the cellulose binding domain from the enzymes used in the disclosed fabric treatment. Instead, Fowler "...specifically contemplates the use of truncated cellulase core, alone or in combination with additional cellulase components, to achieve excellent abrasion with reduced redeposition when compared to non-truncated cellulase." See Col. 20, lines 12-21. Moreover, Fowler defines "[t]he term 'truncated cellulase core' or 'truncated cellulase region'...[as] a peptide comprising the catalytic core domain of exo-cellobiohydrolase or endoglucanase, for example, EGI type, EGII type...or a derivative thereof that is capable of enzymatically cleaving cellulose polymers..." See Col. A12, lines 31-47. "Additionally, naturally occurring cellulase enzymes which lack a binding domain are contemplated as within the scope of the invention." See Col. 20, lines 12-21 "...[A] truncated cellulase core will not possess cellulose binding activity attributable to a cellulose binding domain. A truncated cellulase core is distinguished from a non-truncated cellulase which, in an intact form, possesses poor cellulose binding activity." See Col. 12, lines 38-42. Based upon these disclosures Fowler claims a method for contacting a cellulose containing fabric with an effective amount of truncated cellulase wherein said truncated cellulase lacks a cellulose binding domain.

Since Fowler specifically excludes the cellulose binding domains from the truncated cellulase it discloses for use in treating fabrics to confer desirable qualities, it does not teach or suggest every element of claim 1 which in contrast does require that a cellulose binding domain be linked to the catalytically active amino acid sequence from an EGI enzyme, which in an unmodified form has no cellulose binding domain. See p. 4, first paragraph under the "Cellulolytic Enzyme" heading. Therefore, Fowler does not teach or suggest all of the claim limitations of the present invention as is required under MPEP § 2143 and the obviousness rejection over Fowler cannot stand.

Since Applicants have established that the primary reference of Fowler cannot be properly applied in the suggested context, the Applicants believe there is no need to address the propriety of the application of Schulein as a secondary reference. Nevertheless, the Applicants note that Schulein fails to resolve any of the shortcomings of Fowler, and thus its combination

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with Fowler neither teaches nor suggests each and every element of the claimed invention, as amended.

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Conclusion

In light of the above remarks, it is requested that the Examiner reconsider and withdraw the rejection under 35 USC § 103(a). Early and favorable action in the case is respectfully requested.

Applicants have made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicants respectfully request reconsideration of this application, entry of the amendments presented herein, and allowance of Claims 1, 2 and 22-35.

Respectfully submitted,

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